

REMARKS

Claims 1-20 are pending. Claims 12, 18 and 20 were amended to address the rejection under 35 U.S.C. § 112, first paragraph. Claims 1, 2, 7, 10, 17 and 19 were amended solely to improve their form. Withdrawal of the outstanding rejections is respectfully requested for at least the reasons set forth below.

Rejections under 35 U.S.C. § 112, first paragraph

Claims 12, 18 and 20 were rejected for allegedly failing to comply with the written description requirement. Specifically, it was alleged that the specification fails to describe “a plurality of interconnected primitive switches in cascade.” In response, claims 12, 18 and 20 were amended to recite “a multistage interconnection of primitive switches.” This limitation is fully supported by the specification. See, for example, page 12, line 18 through page 13, line 4 of the present specification.

4. Example of Frame/packet Header in Multistage Self-routing Switching

A self-routing switching fabric often contains multistage interconnection of switching elements. A packet routed through such a switching fabric has to traverse through a primitive switching element at each stage, and its in-band control signal for the switching at different stages may be different. Upon entering the switching fabric, the header of the packet must contain enough information to conveniently derive the in-band control signal for every switching element on the route. Below, with reference to FIG. 8, is an example of the frame/packet header for self-routing switching through a multistage interconnected switching elements. (underlining added for emphasis)

Withdrawal of this rejection is respectfully requested in view of the claim amendments and remarks above.

Rejection under 35 U.S.C. § 102(b)

Claims 1, 2, 4, 6, 7, 11, 13 and 14 were rejected under 35 U.S.C. 102(b) as allegedly being anticipated by U.S. Patent No. 5,568,477 (Galand et al.), hereafter, "Galand." Applicant respectfully traverses these rejections. Claim 3 was rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Galand in view of U.S. Patent No. 6,259,699 (Opalka et al.). Claim 8 was rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Galand in view of U.S. Patent No. 6,259,699 (Opalka et al.) and U.S. Patent Application Publication No. 2002/0176526 (Mejia). Applicant respectfully traverses these rejections.

1. Galand

Galand's invention provides for an optimized, multipurpose network node. Fig. 3 of Galand shows the overall node architecture and is described as follows (underlining added for emphasis):

The network node is made to be connected to trunks which carry either ATM or VL packets through a set of receive adapters on one side and a set of transmit adapters on the other side. Both sets of adapters are interconnected in all possible combinations through a so-called ATM Switch made to process standard fixed length ATM cells only (herein simply referred to as ATM cells). Since the switch can handle only ATM cells, each received variable length packet is segmented in the node into ATM cells for switching purposes while received ATM traffic is switched almost directly. (column 3, lines 48-57)

An ATM network is made up of an ATM switch and ATM endpoints. The ATM switch is responsible for cell transit through the ATM network. It accepts the incoming cell from an ATM endpoint or another ATM switch. It then reads and updates the cell-header information and quickly switches the cell to an output interface towards its destination.

Nowhere does Galand disclose or suggest that the operation of the ATM switch in Fig. 3 can be controlled with reference to the format of incoming cells or frames. In fact, the ATM switch in Fig. 3 has only an input and an output, and no control lines. Fig. 4 of Galand shows a more detailed block diagram of the node architecture shown in Fig. 3 wherein the switch shown

in Fig. 3 is labeled as SW 44 in Fig. 4. SW 44 is also referred to as a “multiport switching device” throughout Galand. Even the more detailed node architecture does not disclose or suggest that the operation of the ATM switch in Fig. 3 can be controlled with reference to the format of incoming cells or frames. Furthermore, there is nothing in the description of Fig. 4 to disclose or suggest that such a capability exists. The ATM switch in Galland appears to function in a conventional manner.

In fact, Galand explicitly discloses that SW 44 accepts cells having only a predefined format, and thus Galand teaches away from any format control capability since there is no need for different control operations if the format is always the same. See, for example, the following text portions of Galand which reads as follows (underlining added for emphasis):

Where the packet is to be switched to an output trunk by the switching device, the receive adapter assures that the received packet is converted to the pre-defined switchable cell format before it is presented to the switching device. (column 2, lines 10-14)

said multipurpose switching node comprising:
a) a multiport switching device having multiple inputs and multiple outputs, said switching device being capable of switching a fixed length cell having a predefined format received on any of said inputs to any of said outputs as a function of address information contained in the cell; (column 12, lines 53-58)

Galand discloses a cell discriminator for identifying the format of each packet received by the network node and a format converter connected to the input trunk and to the cell discriminator for converting each received packet to one or more fixed length cells, each having the predefined format. A similar format identifying and converting function is provided with respect to the output trunk. See, column 12, line 66 through column 13, line 2; and column 13, lines 11-17. However, these functions are performed by the receive and transmit adapters, not by the switch (SW 44), which as described above appears to be a conventional ATM switch.

2. Examiner's Office Action

In the outstanding Office Action, the Examiner asserts that the ability to control the operation of a switch with reference to the format of frames routed through the switch is disclosed in Fig. 4 of Galand, and particularly the use of GPP 44 as described in column 4, lines 23-28. However, this portion of Galand merely illustrates and describes exactly what is discussed above. Fig. 4 clearly shows that the GPP controls only the receive and transmit adapters, and not the operation of switch (SW 44).

In sum, Galand completely lacks the invention concept of controlling the operation of a switch with reference to the format of frames that are routed through the switch, and actually teaches away from such an invention concept.

3. Patentability of claims 1, 7 and 11 over Galand

Claims 1, 7 and 11 each recite at least the following limitations that are not disclosed or suggested in Galand:

controlling the operation of the switch with reference to the format of each of the frames (claim 1)

controlling the connection states of the switch with reference to the format of each of the frames (claim 7)

a control circuit for controlling the operation of the switch with reference to the format of each of the frames (claim 11)

As discussed above, Galand's switch (SW 44) receives cells in only one predefined format and processes them in a conventional manner for an ATM switch. In Galand, no switch operations or connection states are controlled with reference to a frame format. Accordingly, claims 1, 7 and 11 cannot be anticipated by Galand.

Furthermore, claims 1, 7 and 11 are not obvious over Galand. The format identifying and converting functions performed by the receive and transmit adapters in Galand are completely different in structure and function than the claimed switch, and thus cannot render obvious the limitations highlighted above in the claimed switch.

4. Patentability of dependent claims

The dependent claims are believed to be patentable because they depend from allowable independent claims and because they recite additional patentable features. Neither Opalka et al. nor Mejia make up for the above-noted deficiencies in Galand.

5. Allowable claims

Applicants note that claims 10, 17 and 19 are allowable, and that claims 5, 9, 15 and 16 would be allowable if rewritten in independent form.

Conclusion

Insofar as the Examiner's rejections were fully addressed, the instant application is in condition for allowance. A Notice of Allowability of all pending claims is therefore earnestly solicited.

Respectfully submitted,

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